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**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

Applicant: Fouad Mehawej Art Unit: 3761  
Serial No.: 10/066,935 Examiner: Stephens  
Filed: February 4, 2002  
Title: SUPERABSORBENT COMPOSITE AND ABSORBENT ARTICLES  
INCLUDING SAME

**MAIL STOP APPEAL BRIEF-PATENTS**

Commissioner for Patents  
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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

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Art Unit: 3761  
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Confirmation No.: 4239

MAIL STOP APPEAL BRIEF-PATENTS

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

APPEAL BRIEF

Applicant submits the following position in support of their Notice of Appeal, dated May 10, 2006, and in response to the Office Action dated February 10, 2006.

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I. Real Party in Interest

The real party in interest is H.B. Fuller Licensing and Financing Inc.

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II. Related Appeals and Interferences

There are no related appeals or interferences pending.

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III. Status of Claims

Claims 1, 36, 38 and 40 have been cancelled.

Claims 2-35, 37, 39 and 42-48 have been rejected.

Claim 41 has been withdrawn from consideration.

Claims 2-35, 37, 39 and 42-48 are on appeal.

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IV. Status of Amendments

The Amendment After Final submitted April 7, 2006, was not entered. The Amendment After Final submitted on May 10, 2006, was not entered. This Appeal is based on the claims as they existed prior to April 7, 2006.

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V. Summary of the Claimed Subject Matter

In one aspect, the claimed subject matter is directed to a disposable diaper having a core that includes a composite including superabsorbent polymer (i.e., a polymer that is capable of absorbing many times its weight of water) and a high loft nonwoven web including fibers, the nonwoven web being impregnated with the superabsorbent polymer, the superabsorbent polymer having been formed in situ in the nonwoven web by impregnating the nonwoven web with an aqueous superabsorbent polymer precursor composition and drying the aqueous superabsorbent polymer precursor composition to form a superabsorbent polymer throughout the three dimensional matrix of the nonwoven web including along the length of the fibers and the nonwoven web and in the interstices of the nonwoven web, the composite comprising from 10 % by weight to about 90 % by weight superabsorbent polymer. See, Applicant's Specification, page 2, lines 7-12, page 4, lines 11-16 and page 4, line 32 to page 5, line 4.

In another aspect, the claimed subject matter is directed to an absorbent article having a core that includes a composite including a superabsorbent polymer and a high loft nonwoven web including fibers, the nonwoven web being impregnated with the superabsorbent polymer, the superabsorbent polymer having been formed in situ by impregnating the nonwoven web with an aqueous superabsorbent polymer precursor composition and drying the aqueous superabsorbent polymer precursor composition to form a superabsorbent polymer throughout the three dimensional matrix of the nonwoven web including along fibers of the nonwoven web and in the interstices of the nonwoven web, the composite including from 10 % by weight to about 90 % by weight superabsorbent polymer. See, *Id.* at page 4, lines 4-16 and page 4, line 32 to page 5, line 4.

In another aspect, the claimed subject matter is directed to an absorbent article having a core that includes a composite including a superabsorbent polymer and a nonwoven web including fibers and having loft and a density of no greater than 0.025 g/cm<sup>3</sup>, the nonwoven web being impregnated with the superabsorbent polymer, the superabsorbent polymer having been formed in situ by impregnating the nonwoven web with an aqueous superabsorbent polymer precursor composition and drying the aqueous superabsorbent polymer precursor composition to form a superabsorbent polymer



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throughout the three dimensional matrix of the nonwoven web including along fibers of the nonwoven web and in the interstices of the nonwoven web, the composite including from 10 % by weight to about 90 % by weight superabsorbent polymer. *Id.*

In another aspect, the claimed subject matter is directed to a composite including a superabsorbent polymer and a high loft nonwoven web including fibers, the the nonwoven web being impregnated with the superabsorbent polymer, the superabsorbent polymer having been formed in situ by impregnating the nonwoven web with an aqueous superabsorbent polymer precursor composition and drying the aqueous superabsorbent polymer precursor composition to form a superabsorbent polymer throughout the three dimensional matrix of the nonwoven web including along fibers of the nonwoven web and in the interstices of the nonwoven web, the composite including from 10 % by weight to about 90 % by weight superabsorbent polymer. See, *Id.* at page 2, lines 7-12, page 4, lines 11-16 and page 4, line 32 to page 5, line 4.

In another aspect, the claimed subject matter is directed to a composite including a melt blown high loft nonwoven web impregnated with a superabsorbent polymer, the nonwoven web including fibers consisting of polyester, polypropylene, polyethylene or a combination thereof, the composite including from 10 % by weight to about 90 % by weight superabsorbent polymer, the superabsorbent polymer having been formed in situ in the nonwoven web from an aqueous superabsorbent polymer precursor composition, the superabsorbent polymer composition being present throughout the three dimensional matrix of the nonwoven web including along the fibers of the nonwoven web and in the interstices of the nonwoven web. See, *Id.* at page 2, lines 7-12 and page 8, lines 1-9.

In some embodiments, the non-woven web has a density less than  $0.01 \text{ g/cm}^3$ . In other embodiments, the nonwoven web has a density less than  $0.008 \text{ g/cm}^3$ . In some embodiments, the nonwoven web has a density from about  $0.002 \text{ g/cm}^3$  to about  $0.009 \text{ g/cm}^3$ . In other embodiments, the nonwoven web has a density from about  $0.007 \text{ g/cm}^3$  to about  $0.009 \text{ g/cm}^3$ . See, *Id.* at page 2, lines 23-27.

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VI. Grounds for Rejection to be Reviewed on Appeal

- A. Whether claims 2-10, 18-20, 26-30, 32-34, 37, and 44-47 are patentable under 35 U.S.C. § 102(b) over Chmielewski (U.S. 6,068,620)?
- B. Whether claims 11-17, 21-25, 31, and 38 are patentable under 35 U.S.C. § 103 over Chmielewski?
- C. Whether claim 35 is patentable under 35 U.S.C § 103 over Chmielewski in view of Abuto et al. (U.S. 5,788,684)?
- D. Whether claim 48 is patentable under 35 U.S.C. § 103 over Chmielewski in view of U.S. 2003/0105441 (the '441 application)?

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VII. Argument

A. Claims 2-10, 18-20, 26-30, 32-34, 37, and 44-47 are patentable under 35 U.S.C. § 102(b) over Chmielewski.

Claims 2-10, 18-20, 26-30, 32-34, 37, and 44-47 stand rejected under 35 U.S.C. § 102(b) over Chmielewski (U.S. 6,068,620).

Chmielewski discloses a disposable absorbent article that includes an absorbent core that includes a laminate of three layers in which the central fibrous layer includes a superabsorbent polymer.

Claims 2-5, 37 and 44-47

Claim 44 is directed to a disposable diaper having a core that includes a composite that includes from 10 % by weight to about 90 % by weight superabsorbent polymer, and a high loft nonwoven web that includes fibers, the nonwoven web being impregnated with the superabsorbent polymer, and the superabsorbent polymer having been formed in situ in the nonwoven web by impregnating the nonwoven web with an aqueous superabsorbent polymer precursor composition and drying the aqueous superabsorbent polymer precursor composition to form a superabsorbent polymer throughout the three dimensional matrix of the nonwoven web including along the length of the fibers of the nonwoven web and in the interstices of the nonwoven web. Under 35 U.S.C. § 102(b), the subject matter of a claim is anticipated if each and every element set forth in the claim is found in a single prior art reference. *Verdegaal Bros., Inc., v. Union Oil Co.*, 814 F.2d 628, 631 (Fed. Cir. 1987). If the reference fails to teach even one limitation of the claimed invention, then the claim is not anticipated under § 102(b). *Atlas Powder Co. v. E.I. du Pont De Nemours & Co.*, 750 F.2d 1569, 1574 (Fed. Cir. 1984). Chmielewski does not disclose a superabsorbent polymer (SAP) that is formed throughout the three dimensional matrix of a nonwoven web including along the length of the fibers and in the interstices of the nonwoven web. Rather, Chmielewski discloses a laminate that includes a central absorbent layer formed by combining superabsorbent polymer and fibers, and then forming a layer from the mixture (see, Chmielewski, col. 3, lines 6-19). The resulting layer includes discrete particulate or fibrous SAP strewn throughout the layer (*Id.*). Chmielewski further discloses that the SAP would normally tend to migrate out the side edges 350d, 352d of the central absorbing layers 350a, 352a

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but the tissue layer 348, which extends around the side edges 350d and 352d, of the laminates substantially prevents the lateral migration of the SAP out of the side edges 350d, 352d (see, *Id.* at col. 9, line 59-col. 10, line 7; see also *Id.* at col. 8, line 60-col. 9, line 11). Chmielewski also discloses, "individual particles of SAP are preferably not bonded to the fiber component or the outer layers, but are rather preferably locked within the absorbent layer 340a due to the pore size of the fibrous additive." *Id.* at col. 16, lines 3-7. Chmielewski further discloses, "[t]he structure and composition of the absorbent laminates 342, 352 are preferably designed for optimal strength, SAP containment, and liquid distribution." *Id.* at col. 13, lines 33-36. Thus, the SAP of Chmielewski's absorbent garment is in the form of mobile particles or fibers. The presence of the SAP as discrete, individual superabsorbent particles or fibers in the layer does not constitute superabsorbent polymer formed throughout the three dimensional matrix of the nonwoven web including along fibers of the nonwoven web and in the interstices of the nonwoven web. Accordingly, since Chmielewski fails to teach a high loft nonwoven web including a superabsorbent polymer formed throughout the three dimensional matrix of the nonwoven web including along fibers of the nonwoven web and in interstices of the nonwoven web, Chmielewski fails to teach the article of claim 44.

The Examiner does not dispute the fact that Chmielewski fails to expressly teach a superabsorbent polymer formed throughout the three dimensional matrix of a nonwoven web including along fibers of the nonwoven web and in the interstices of the nonwoven web. Instead, the Examiner takes the position that Chmielewski disclose a composition including up to 80 % SAP, and that "[a]t this high concentration of SAP, it is inevitable that the SAP is present throughout the web." February 10, 2006 Office Action, page 2, para. 1. In other words, Applicant understands the Examiner's position to be that compositions having up to 80% SAP will inherently have SAP formed throughout the web including along the length of the fibers of the web and in the interstices of the web. "The fact that a certain result or characteristic may occur or be present in the prior art is not sufficient to establish the inherency of that result." M.P.E.P. 2112; *In re Rijckaert*, 9 F.3d 1531, 1534 (Fed. Cir. 1993). (Emphasis in original.) Additionally, "[i]n relying upon a theory of inherency, the examiner must provide a basis in fact and/or technical reasoning to reasonably support the determination that the allegedly inherent

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characteristic necessarily flows from the teachings of the applied prior art.” M.P.E.P. 2112 quoting *Ex parte Levy*, 17 USPQ2d 1461, 1464 (Bd. Pat. App. & Inter. 1990). (Emphasis in original.) The burden is on the Examiner to identify where in Chmielewski there is a teaching of a superabsorbent polymer formed throughout the three dimensional matrix of a nonwoven web including along the length of the fibers of the nonwoven web and in the interstices of the nonwoven web. This the Examiner has not done. Rather, the Examiner asserts that Figure 8 “shows superabsorbent polymer in contact, and in interstices between the fibers.” February 10, 2006 Office Action, page 3, para. 1. At best, Figure 8 depicts discrete particles of SAP in contact with isolated portions of the fibers of the web and does not disclose a superabsorbent polymer formed along the length of fibers of the nonwoven web. Additionally, there is nothing in the record that satisfies the Examiner’s burden to reasonably support the assertion that at a concentration of up to 80 % SAP it is inevitable that the particulate SAP of Chmielewski is formed throughout the web including along the length of the fibers of the web and in the interstices of the web.

The Examiner also asserts, “the features upon which applicant relies (i.e., coating along the length of the fibers of the nonwoven web) are not recited in the rejected claim(s).” *Id.* at page 2, para. 1. Claim 44 expressly recites that the superabsorbent polymer is formed in situ throughout the three dimensional matrix of the nonwoven web including along the length of the fibers of the nonwoven web. (Emphasis added.) In addition, when the superabsorbent polymer is formed in situ in a nonwoven web, it necessarily forms as an essentially continuous phase throughout the web including along the length of the fibers and the interstices of the fibers. Since the superabsorbent polymer forms as an essentially continuous phase along the length of the fibers of the nonwoven web, the formation of the superabsorbent polymer in situ coats the length of the fibers of the nonwoven web. Therefore, since claim 44 expressly recites that the superabsorbent polymer is formed along the length of the fibers of the nonwoven web and the superabsorbent polymer is formed in situ, and since formation of the superabsorbent polymer in situ forms an essentially continuous phase that coats the lengths of the fibers of the nonwoven web, claim 44 expressly and inherently includes the features (i.e., coating along the length of the fibers) that the Examiner asserts are absent from claim 44.

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The superabsorbent polymer of claim 44 is formed in situ in the nonwoven web by impregnating the nonwoven web with an aqueous superabsorbent polymer precursor composition and drying the aqueous superabsorbent polymer precursor composition to form superabsorbent polymer throughout the three dimensional matrix of the nonwoven web including along the fibers of the nonwoven web and in interstices of the nonwoven web. In the February 10 Office Action, the Examiner asserts, “[T]he limitation of the superabsorbent polymer having been formed in situ is directed to a process of making an article,” and refused to give any weight to the process aspect of claim 44. *Id.* at page 4, para. 1. The Examiner also asserts, “The patentability of a product does not depend on its method of production. If the product in a product-by-process claim is the same or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process.” *Id.* It is well established that where process steps impart distinct structural characteristics, those process steps must be considered.

The structure implied by the process steps should be considered when assessing the patentability of product-by-process claims over the prior art especially where the product can only be defined by the process steps by which the product is made, or where the manufacturing process steps would be expected to impart distinctive structural characteristics to the final product.

M.P.E.P. 2113 *citing In re Garnero*, 412 F.2d 276, 279 (CCPA 1979). In the present case, the product that results from impregnating a web with an aqueous superabsorbent polymer precursor composition and drying the composition to form a superabsorbent polymer is inherently different from the article produced by the method disclosed in Chmielewski. In particular, a superabsorbent polymer formed by impregnating a nonwoven web with an aqueous superabsorbent polymer precursor composition forms as a polymer throughout the three dimensional matrix of the web including in the interstices of the nonwoven web and along the length of the fibers of the web. As such, the process language in claim 44 imparts distinctive structural characteristics to the article of claim 44. Accordingly, the process language of claim 44 must be given weight when assessing claim 44 in view of the prior art including Chmielewski.

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Chmielewski does not teach a nonwoven web in which the superabsorbent polymer is formed in situ. Rather, the absorbent layer of Chmielewski is made by combining superabsorbent polymer and fibers and then forming the mixture into a layer using a wet or dry process (see, e.g., Chmielewski, col. 14, line 21-col. 16, line 15). The wet-laid process described by Chmielewski involves entraining a predetermined amount of a slurry that includes a solvent/water-based suspension of fiber, particulate and superabsorbent polymer on a conveyor (e.g., of wire mesh). In other words, the superabsorbent polymer exists prior to the formation of the layer and is not formed in situ using a superabsorbent polymer precursor composition. In addition, the particulate SAP is incorporated simultaneously with the formation of the web of Chmielewski. Furthermore, the superabsorbent polymer in Chmielewski's absorbent garments exists as discrete particles or fibers in the nonwoven web. Moreover, the superabsorbent polymer of Chmielewski is not present as a polymer impregnate; therefore it can not be present throughout the three dimensional matrix of the nonwoven web including along the length of the fibers and in the interstices of the nonwoven web. For at least the above additional reasons, Applicant submits that the rejection of claim 44 under 35 U.S.C. § 102(b) over Chmielewski is unwarranted and respectfully request that it be overruled.

Claims 2-5, 37 and 45-47 are distinguishable under 35 U.S.C. § 102(b) over Chmielewski for at least the same reasons set forth above in distinguishing claim 44. Applicant submits, therefore, that the rejection of claims 2-5, 37 and 45-47 under 35 U.S.C. § 102 over Chmielewski is also unwarranted and respectfully requests that it be overruled.

#### Claim 46

Claim 46 is further distinguishable under 35 U.S.C. § 102(b) over Chmielewski for at least the following additional reasons. Claim 46 is directed to an absorbent article having a core that includes a composite that includes superabsorbent polymer, and a nonwoven web that includes fibers and has loft and a density of no greater than 0.025 g/cm<sup>3</sup>. The nonwoven web is impregnated with the superabsorbent polymer, which has been formed in situ in the nonwoven web by impregnating the nonwoven web with an aqueous superabsorbent polymer precursor composition and drying the aqueous superabsorbent polymer precursor composition to form a superabsorbent polymer

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throughout the three dimensional matrix of the nonwoven web including along the length of the fibers of the nonwoven web and in the interstices of the nonwoven web. The composite includes from 10 % by weight to about 90 % by weight superabsorbent polymer. Chmielewski does not teach a nonwoven web having a density of no greater than  $0.025 \text{ g/cm}^3$ . Chmielewski also does not teach a nonwoven web having a density of no greater than  $0.025 \text{ g/cm}^3$  that includes superabsorbent polymer. Chmielewski discusses density with respect to the overall density of the laminate construction disclosed therein (see, e.g., col. 14, lines 16-20). However, Chmielewski does not teach that a nonwoven web that includes superabsorbent polymer should have any particular density--let alone a density no greater than  $0.025 \text{ g/cm}^3$ . There is no evidence of record establishing anything to the contrary. Thus, Chmielewski lacks a required element of the article of claim 46. Applicant submits that a *prima facie* case of anticipation of claim 46 has not been made. Accordingly, the rejection of claim 46 under 35 U.S.C. § 102(b) over Chmielewski cannot stand and must be overruled.

B. Claims 11-17, 21-25 and 31 are patentable under 35 U.S.C. § 103 over Chmielewski

Claims 11-17, 21-25, and 31 stand rejected under 35 U.S.C. § 103 over Chmielewski.

Chmielewski disclose a disposable absorbent article that includes an absorbent core that includes a laminate of three layers in which the central fibrous layer includes a superabsorbent polymer.

Claims 11-17, 21-25 and 31

The rejection of claims 11-17, 21-25, and 31 is based upon the above-refuted premise that Chmielewski teaches the disposable diaper of claim 44. Since this premise has been refuted, the rejection of claims 11-17, 21-25 and 31 under 35 U.S.C. § 103 over Chmielewski is unwarranted and must be overruled for at least the same reasons as set forth above in distinguishing claim 44.

Claims 11

Claim 11 is further distinguishable under 35 U.S.C. § 103 over Chmielewski for at least the following additional reasons. Claim 11 is directed to the disposable diaper of claim 44 and further recites that the nonwoven web has a density of less than  $0.01 \text{ g/cm}^3$ .



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It is undisputed that Chmielewski does not teach a disposable diaper including a nonwoven web having a density of less than  $0.01 \text{ g/cm}^3$  (see, February 10, 2006 Office Action, page 7, para. 2). The Examiner asserts, "[T]he applicant fails to disclose that a density less than  $0.01 \text{ g/cm}^3$  is such a critical value or gives unexpected result so as to exclude a higher density." *Id.* It is well established by legal precedent that if a variable is not known to be a result effective variable, then it cannot be obvious to optimize that variable (see, e.g., *In re Antonie*, 559 F.2d 618, 620 (CCPA 1977)). Applicant discovered that high loft nonwoven webs (i.e., a nonwoven web having a density no greater than  $0.01 \text{ g/cm}^3$ ) with relatively less superabsorbent polymer can absorb more water than more dense nonwoven webs with relatively more superabsorbent polymer when the superabsorbent polymer is formed in situ. Chmielewski does not teach or suggest this phenomenon nor does this phenomenon inherently occur in Chmielewski's composite. Chmielewski's composite is not obtained by adding an aqueous superabsorbent polymer precursor composition to an existing nonwoven web. Rather, Chmielewski's composite is obtained by simultaneously mixing fibers and superabsorbent polymer and then further processing the mixture to form a composite (see, Chmielewski, col. 14, lines 21-46). Therefore, Chmielewski does not teach a composite that starts from impregnating a nonwoven web with superabsorbent polymer precursor --let alone impregnating a high loft nonwoven web with a superabsorbent polymer precursor. Accordingly, Chmielewski does not teach or suggest and further fails to recognize that the density of a nonwoven web starting material is important in optimizing the absorbency of a composite made therefrom or that the density of a nonwoven web is a variable to be optimized.

Additionally, to establish a *prima facie* case of obviousness where a single prior art reference is alleged to render a claimed invention obvious, the Office Action must contain a sufficient showing of a suggestion or motivation that would lead one of ordinary skill in the art to modify the teachings of that reference to achieve the claimed invention. See, *SIBLA Neuroscis., Inc. v. Cadus Pharm. Corp.*, 225 F.3d 1349, 1356 (Fed. Cir. 2000); *B.F. Goodrich Co. v. Aircraft Braking Sys. Corp.*, 72 F.3d 1577, 1582 (Fed. Cir. 1996). Nothing on the record establishes the required showing of a suggestion or motivation that would lead the skilled artisan to modify Chmielewski's composites to achieve the disposable diaper of claim 11, wherein the nonwoven web has a density of

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less than  $0.01 \text{ g/cm}^3$ . Chmielewski does not recognize the benefit of employing a high loft nonwoven web and does not recognize the impact of forming superabsorbent polymer in situ in a high loft nonwoven web. Forming the superabsorbent polymer in situ in a high loft nonwoven web causes the structure of the web to contract and compress. When subsequently contacted with water, the superabsorbent polymer absorbs water and begins to gel. The force exerted by the superabsorbent polymer on the fibrous structure of the nonwoven web decreases and allows the resilient fibers to move toward their original high loft structure. As the web expands, more superabsorbent polymer is exposed for contact with additional water, additional passageways open up or are made easier to navigate by water molecules, and water is allowed to penetrate further into the depth of the composite. Nothing in Chmielewski teaches or suggests this phenomenon. Therefore the skilled artisan would have no reason to optimize the density of the nonwoven web, and further would have no clue that the density of the nonwoven web would impact the absorbency of the resulting composite. Accordingly, Applicant submits that the rejection of claim 11 under 35 U.S.C. § 103 over Chmielewski is unwarranted and respectfully requests that it be overruled.

#### Claim 12

Claim 12 is further distinguishable under 35 U.S.C. § 103 over Chmielewski for at least the following additional reasons. Claim 12 is directed to the disposable diaper of claim 44 and further recites that the nonwoven web has a density of less than  $0.008 \text{ g/cm}^3$ . It is undisputed that Chmielewski does not teach a disposable diaper including a nonwoven web having a density of less than  $0.008 \text{ g/cm}^3$  (see, February 10, 2006 Office Action, page 7, para. 2). The Examiner asserts, "[T]he applicant fails to disclose that a density less than  $0.01 \text{ g/cm}^3$  is such a critical value or gives unexpected result so as to exclude a higher density." *Id.* It is well established by legal precedent that if a variable is not known to be a result effective variable, then it cannot be obvious to optimize that variable (see, e.g., *In re Antonie*, 559 F.2d 618, 620 (CCPA 1977)). As established above, Chmielewski does not teach or suggest and further fails to recognize that the density of a nonwoven web starting material is important in optimizing the absorbency of a composite made therefrom or that density of a nonwoven web is a variable to be optimized. Additionally, as established above, nothing on the record establishes the

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required showing of a suggestion or motivation that would lead the skilled artisan to modify Chmielewski's composites to achieve the disposable diaper of claim 12, wherein the nonwoven web has a density of less than  $0.008 \text{ g/cm}^3$ . Accordingly, Applicant submits that the rejection of claim 12 under 35 U.S.C. § 103 over Chmielewski is unwarranted and respectfully requests that it be overruled.

### Claim 13

Claim 13 is further distinguishable under 35 U.S.C. § 103 over Chmielewski for at least the following additional reasons. Claim 13 is directed to the disposable diaper of claim 44 and further recites that the nonwoven web has a density from about  $0.002 \text{ g/cm}^3$  to about  $0.009 \text{ g/cm}^3$ . It is undisputed that Chmielewski does not teach a disposable diaper including a nonwoven web having a density from about  $0.002 \text{ g/cm}^3$  to about  $0.009 \text{ g/cm}^3$  (see, February 10, 2006 Office Action, page 7, para. 2). The Examiner asserts, "the applicant fails to disclose that a density less than  $0.01 \text{ g/cm}^3$  is such a critical value or gives unexpected result so as to exclude a higher density." *Id.* It is well established by legal precedent that if a variable is not known to be a result effective variable, then it cannot be obvious to optimize that variable (see, e.g., *In re Antonie*, 559 F.2d 618, 620 (CCPA 1977)). As established above, Chmielewski does not teach or suggest and further fails to recognize that the density of a nonwoven web starting material is important in optimizing the absorbency of a composite made therefrom or that density of a nonwoven web is a variable to be optimized. Additionally, as established above, nothing on the record establishes the required showing of a suggestion or motivation that would lead the skilled artisan to modify Chmielewski's composites to achieve the disposable diaper of claim 13, wherein the nonwoven web has a density from about  $0.002 \text{ g/cm}^3$  to about  $0.009 \text{ g/cm}^3$ . Accordingly, Applicant submits that the rejection of claim 13 under 35 U.S.C. § 103 over Chmielewski is unwarranted and respectfully requests that it be overruled.

Claim 14 is patentable under 35 U.S.C. § 103 over Chmielewski for at least the same reasons set forth above in distinguishing claims 11-13. Applicant submits, therefore, that the rejection of claim 14 under 35 U.S.C. § 103 over Chmielewski is also unwarranted and respectfully requests that it be overruled.

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C. Claim 35 is patentable under 35 U.S.C. § over Chmielewski in view of Abuto et al.

Claim 35 stands rejected under 35 U.S.C. § 103 over Chmielewski in view of Abuto et al. U.S. 5,788,684.

Chmielewski discloses a disposable absorbent article that includes an absorbent core that includes a laminate of three layers in which the central fibrous layer includes a superabsorbent polymer.

Abuto et al. describe a liquid absorbing article that includes holes that extend through the depth of the absorbent core. The holes are at least partially filled with a high absorbency material.

Claim 35 depends from claim 44 and further recites that the core includes a plurality of strips of the composite of claim 44. The deficiencies of Chmielewski set forth above are incorporated herein. Abuto et al. do not cure the deficiencies of Chmielewski since Abuot et al. do not teach or suggest a high loft nonwoven web including a superabsorbent polymer formed throughout the three dimensional matrix of the nonwoven web including along fibers of the nonwoven web and in interstices of the nonwoven web. Additionally, Abuto et al. do not teach or suggest a nonwoven web in which the superabsorbent polymer is formed in situ in the nonwoven web by impregnating the nonwoven web with an aqueous superabsorbent polymer precursor composition to form superabsorbent polymer. Thus, the proposed combination of Chmielewski and Abuto et al. lacks a required element of claim 35. Accordingly, the rejection of claim 35 under 35 U.S.C. § 103 over Chmielewski in view of Abuto et al. is unwarranted and Applicant respectfully requests that it be overruled.

D. Claim 48 is patentable under 35 U.S.C. § 103 over Chmielewski in view of U.S. 2003/0105441

Claim 48 stands rejected under 35 U.S.C. § 103 over Chmielewski in view of U.S. 2003/0105441 (the '441 application).

Chmielewski discloses a disposable absorbent article that includes an absorbent core that includes a laminate of three layers in which the central fibrous layer includes a superabsorbent polymer.

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The '441 application discloses an absorbent article that includes a substantially impermeable backsheet, a permeable topsheet and an absorbent core that includes superabsorbent polymer.

Claim 48 is directed to a composite that includes a melt blown high loft nonwoven web impregnated with superabsorbent polymer, the nonwoven web including fibers consisting of polyester, polypropylene, polyethylene, or a combination thereof, the superabsorbent polymer having been formed in situ in the nonwoven web from an aqueous superabsorbent polymer precursor composition, the superabsorbent polymer being present throughout the three dimensional matrix of the nonwoven web including along the fibers of the nonwoven web and in the interstices of the nonwoven web. In order to establish a *prima facie* case of obviousness, "the prior art reference (or references when combined) must teach or suggest all of the claim limitations." M.P.E.P. 2142. As established above, Chmielewski does not teach either a nonwoven web in which the superabsorbent polymer is formed in situ or a superabsorbent polymer formed throughout the three dimensional matrix of a nonwoven web including along the fibers and in the interstices of the nonwoven web. Additionally, it is undisputed that Chmielewski does not teach a melt blown high loft nonwoven web impregnated with superabsorbent polymer, where the nonwoven web includes fibers consisting of polyester, polypropylene, polyethylene and combinations thereof.

The '441 application does not cure the deficiencies of Chmielewski. The '441 application was first cited against the above-captioned application in the February 10, 2006 Final Office Action. Applicant's first opportunity to address the '441 reference was in their April 7, 2006 Amendment After Final, which was not entered. In that submission, Applicant included a Declaration of Fouad D. Mehawej establishing that prior to November 30, 2001, the filing date of the '441 application, a high loft nonwoven web was saturated with a superabsorbent polymer composition at Applicant's direction, and therefore establishing that the '441 application is not available as a prior art reference against the above-captioned application. The Examiner, however, refused to enter the April 7th declaration (see, June, 8, 2006 Advisory Action). Applicant maintains that the '441 application is not an available reference against the above-captioned application based on the Declaration of Fouad D. Mehawej, and submits that the rejection of claim

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48 under 35 U.S.C. § 103 over Chmielewski in view of the '441 application is unwarranted and requests that it be overruled.

Even assuming *arguendo* that the '441 application is an available reference against the above-caption application, which Applicant in no way concedes, the '441 application does not teach or suggest either a nonwoven web in which the superabsorbent polymer is formed in situ or a superabsorbent polymer formed throughout the three dimensional matrix of a nonwoven web including along the fibers and in the interstices of the nonwoven web. Rather, the '441 application discloses that the absorbent core can be formed by air laying or wet laying fibers in a superabsorbent material (see, '441 application, para. 52). Since the superabsorbent material of the '441 application exists prior to mixing the superabsorbent material with the fibers, the '441 application does not teach or suggest forming the superabsorbent material in situ in a nonwoven web. The '441 application also discloses that the superabsorbent material can include a substantially continuous phase having a sufficient quantity of particles of the superabsorbent material (see, *Id.* at para. 55). (Emphasis added.) Additionally, the '441 application discloses that the absorbent composites include a means to contain the superabsorbent material (see, *Id.* at para. 41). Thus, the '441 application indicates that the superabsorbent polymer exists as discrete, mobile particles and is not a superabsorbent polymer formed in situ throughout the three dimensional matrix of a nonwoven web including along the fibers and in the interstices of the nonwoven web. Since neither Chmielewski nor the '441 application teach or suggest either a superabsorbent polymer formed in situ in a nonwoven web or a superabsorbent polymer formed throughout the three dimensional matrix of a nonwoven web including along the length of the fibers and in the interstices of the nonwoven web, the proposed combination of Chmielewski and the '441 application fails to teach or suggest the composite of claim 48. For at least this additional reason, Applicant submits that the rejection of claim 48 under 35 U.S.C. § 103 over Chmielewski in view of the '441 publication is unwarranted and requests that it be overruled.

The claims now pending in the application are in condition for allowance. Applicant respectfully requests that the Board overrule the rejections of record with direction to the Examiner to pass the application to issue.

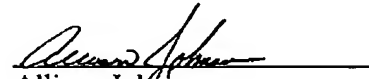
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An Appendix of the Claims involved in the appeal is attached at Appendix A.

Please charge any fees owing or credit any over payments made to Deposit Account No.  
06-2241.

Respectfully submitted,

Date: July 10, 2006

  
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APPENDIX A  
CLAIMS ON APPEALRECEIVED  
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2. The disposable diaper of claim 44, wherein said composite comprises at least 50 % by weight superabsorbent polymer.

3. The disposable diaper of claim 44, wherein said composite comprises at least 60 % by weight superabsorbent polymer.

4. The disposable diaper of claim 44, wherein said composite comprises at least 70 % by weight superabsorbent polymer.

5. The disposable diaper of claim 44, wherein said composite comprises at least 80 % by weight superabsorbent polymer.

6. The disposable diaper of claim 44, wherein said nonwoven web has a basis weight of greater than 22 g/m<sup>2</sup>.

7. The disposable diaper of claim 44, wherein said nonwoven web has a basis weight from about 25 g/m<sup>2</sup> to less than 300 g/m<sup>2</sup>.

8. The disposable diaper of claim 44, wherein said nonwoven web has a basis weight of at least 55 g/m<sup>2</sup>.

9. The disposable diaper of claim 44, wherein said nonwoven web has a basis weight of at least 90 g/m<sup>2</sup>.

10. The disposable diaper of claim 44, wherein said nonwoven web has a basis weight of at least 100 g/m<sup>2</sup>.

11. The disposable diaper of claim 44, wherein said nonwoven web has a density less than 0.01 g/cm<sup>3</sup>.

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12. The disposable diaper of claim 44, wherein said nonwoven web has a density less than  $0.008 \text{ g/cm}^3$ .

13. The disposable diaper of claim 44, wherein said nonwoven web has a density from about  $0.002 \text{ g/cm}^3$  to about  $0.009 \text{ g/cm}^3$ .

14. The disposable diaper of claim 44, wherein said nonwoven web has a density from about  $0.007 \text{ g/cm}^3$  to about  $0.009 \text{ g/cm}^3$ .

15. The disposable diaper of claim 44, wherein said composite exhibits a saline absorption capacity under a load of 0.3 psi of at least 10 g 0.9 % saline/g composite.

16. The disposable diaper of claim 44, wherein said composite exhibits a saline absorption capacity under a load of 0.3 psi of at least 15 g 0.9 % saline/g composite.

17. The disposable diaper of claim 44, wherein said composite exhibits a saline absorption capacity under a 0.3 psi load of at least 20 g 0.9 % saline/g composite.

18. The disposable diaper of claim 44, wherein said composite exhibits a water absorption capacity of at least 20 g water/g composite.

19. The disposable diaper of claim 44, wherein said composite exhibits a water absorption capacity of at least 30 g water/g composite.

20. The disposable diaper of claim 44, wherein said composite exhibits a water absorption capacity of at least 40 g water/g composite.

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21. The disposable diaper of claim 44, wherein said composite exhibits a dry tensile strength of at least 2000 g/25.4 mm.

22. The disposable diaper of claim 44, wherein said composite exhibits a dry tensile strength of at least 2500 g/25.4 mm.

23. The disposable diaper of claim 44, wherein said composite exhibits a wet tensile strength of at least 150 g/25.4 mm.

24. The disposable diaper of claim 44, wherein said composite exhibits a wet tensile strength of at least 400 g/25.4 mm.

25. The disposable diaper of claim 44, wherein said composite exhibits a wet tensile strength of at least 450 g/25.4 mm.

26. The disposable diaper of claim 44 further comprising a top sheet, an acquisition layer, a cellulose fiber layer, an impermeable layer or a combination thereof.

27. The disposable diaper of claim 44, wherein said core further comprises cellulose fibers, said disposable diaper further comprising an acquisition layer, said cellulose fibers being disposed between said acquisition layer and said composite.

28. The disposable diaper of claim 44 further comprising an acquisition layer and an impermeable layer, said core being disposed between said acquisition layer and said impermeable layer.

29. The disposable diaper of claim 44 further comprising a second nonwoven web and an acquisition layer, said acquisition layer being disposed between said core and said second nonwoven web.

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30. The disposable diaper of claim 44, wherein said superabsorbent polymer comprises the reaction product of

a polymer derived from an  $\alpha$ - $\beta$ -ethylenically unsaturated carboxylic acid monomer, said polymer comprising neutralized carboxylic acid groups, and  
a crosslinking agent.

31. The disposable diaper of claim 30, wherein said  $\alpha$ - $\beta$ -ethylenically unsaturated carboxylic acid is selected from the group consisting of methacrylic acid, crotonic acid, maleic acid, maleic acid anhydride, itaconic acid, fumaric acid, and mixtures thereof.

32. The disposable diaper of claim 30, wherein said polymer comprises polyacrylic acid.

33. The disposable diaper of claim 44, wherein said superabsorbent polymer remains disposed within the matrix of the high loft web when contacted with an aqueous composition.

34. The disposable diaper of claim 44, wherein said core further comprises cellulose fibers, said composite being disposed in regions on said cellulose fibers.

35. The disposable diaper of claim 44, wherein said core comprises a plurality of strips of said composite.

37. An article according to the absorbent article of claim 45 selected from the group consisting of feminine napkins, incontinence pads and mattress pads.

39. The absorbent article of claim 46, wherein said nonwoven web has a density no greater than  $0.023 \text{ g/cm}^3$ .

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42. The diaper of claim 44, wherein the fibers of said nonwoven web consist of synthetic polymer.

43. The diaper of claim 44, wherein the fibers of said nonwoven web consist of synthetic polymer selected from the group consisting of polyester, polypropylene, polyethylene, polyolefin, polyamide, polyurethane, polyacrylonitrile and combinations thereof.

44. A disposable diaper having a core that comprises a composite comprising:  
superabsorbent polymer; and  
a high loft nonwoven web comprising fibers,  
said nonwoven web being impregnated with said superabsorbent polymer,  
said superabsorbent polymer having been formed in situ in said nonwoven web by impregnating said nonwoven web with an aqueous superabsorbent polymer precursor composition and drying said aqueous superabsorbent polymer precursor composition to form a superabsorbent polymer throughout the three dimensional matrix of said nonwoven web including along the length of the fibers of said nonwoven web and in the interstices of said nonwoven web,  
said composite comprising from 10 % by weight to about 90 % by weight superabsorbent polymer.

45. An absorbent article having a core that comprises a composite comprising:  
superabsorbent polymer; and  
a high loft nonwoven web comprising fibers,  
said nonwoven web being impregnated with said superabsorbent polymer,  
said superabsorbent polymer having been formed in situ in said nonwoven web by impregnating said nonwoven web with an aqueous superabsorbent polymer precursor composition and drying the aqueous superabsorbent polymer precursor composition to form a superabsorbent polymer throughout the three dimensional matrix of said nonwoven web including along fibers of said nonwoven web and in the interstices of said nonwoven web,

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said composite comprising from 10 % by weight to about 90 % by weight superabsorbent polymer.

46. An absorbent article having a core that comprises a composite comprising:
- superabsorbent polymer; and
  - a nonwoven web comprising fibers and having loft and a density of no greater than  $0.025 \text{ g/cm}^3$ ,
  - said nonwoven web being impregnated with said superabsorbent polymer,
  - said superabsorbent polymer having been formed in situ in said nonwoven web by impregnating said nonwoven web with an aqueous superabsorbent polymer precursor composition and drying the aqueous superabsorbent polymer precursor composition to form a superabsorbent polymer throughout the three dimensional matrix of said nonwoven web including along the length of the fibers of said nonwoven web and in the interstices of said nonwoven web,
  - said composite comprising from 10 % by weight to about 90 % by weight superabsorbent polymer.

47. A composite comprising:
- superabsorbent polymer; and
  - a high loft nonwoven web comprising fibers,
  - said nonwoven web being impregnated with said superabsorbent polymer,
  - said superabsorbent polymer having been formed in situ in said nonwoven web by impregnating said nonwoven web with an aqueous superabsorbent polymer precursor composition and drying the aqueous superabsorbent polymer precursor composition to form a superabsorbent polymer throughout the three dimensional matrix of said nonwoven web

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including along fibers of said nonwoven web and in interstices of said nonwoven web,

said composite comprising from 10 % by weight to about 90 % by weight superabsorbent polymer.

48. A composite comprising;

a melt blown high loft nonwoven web impregnated with superabsorbent polymer, said nonwoven web comprising fibers consisting of polyester, polypropylene, polyethylene or a combination thereof,

said composite comprising from 10 % by weight to about 90 % by weight said superabsorbent polymer, said superabsorbent polymer having been formed in situ in said nonwoven web from an aqueous superabsorbent polymer precursor composition, said superabsorbent polymer being present throughout the three dimensional matrix of said nonwoven web including along the fibers of said nonwoven web and in the interstices of said nonwoven web.

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APPENDIX B  
EVIDENCE

(NONE)

Bi

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APPENDIX C  
RELATED PROCEEDINGS

(NONE)

Ci